

Title



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Math
Muscatine HS- East Campus
Monsanto

Part I: Overview of Business

Monsanto is a global supplier of seeds and herbicides that declares its mission as a sustainable agriculture company. Monsanto provides both coated seeds and Roundup products to increase yield and efficiencies to farmers around the world. The Muscatine facility opened in 1955, and serves the agriculture industry by developing and supplying herbicides to both kill and prevent weeds in a variety of crops.

Part II: Job Specifics

- The Central Lab is where all of the chemicals products in the Crop protection division get tested. There are two main testing processes that are used, and two secondary tests that support the business.
- The problem based lesson revolves around one of those secondary test processes within the lab.

Part III: Introduce the Problem

- In order to reduce costs, the lab has been tasked with developing a new method for testing in one of their process lines.
- This new method could include new equipment, or simply a change in test parameters.
- This alternative method must produce the same results (statistically) as the method currently in place.

Part IV: Background

- The students will need to understand what flow rate and wavelength are, and how they are measured.
- They will also need to be familiar with using Excel, although the formulas will already be put into the spreadsheets for them.
- The Central Lab needed to gather data in order to make an informed decision.

Part V: Business Solution

- This problem has been altered from the actual problem that the Central Lab was tasked with, so the solution is slightly different.
- The lab ran side by side tests with different components and chose the product to continue their tests with.
- Then several tests were run with various parameters to find the new settings that would shorten the duration of the tests and yet provide the most reliable information.

Part VI: Student Solutions

- Hopefully, after a group discussion, and possibly even a visit to Monsanto's Central Lab, the students should brainstorm possible changes that could be made.
- They will be guided in such a way that they should exercise the freedom to change any number of variables (one at a time) and document the effect those changes had on the results.
- Once the groups decide on their parameters, they will have to present their results to the other groups and persuade them to use their settings/parameters.